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Outcome of cognitive behaviour therapy for minor depression in routine practice

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Objectives. To examine (1) whether the improvement in depressive symptomatology in subjects participating in psychoeducational groups for minor depression in routine practice is comparable to the improvement realized in a randomized efficacy trial; and (2) whether the level of depressive symptoms of subjects who participated in this intervention is similar after treatment to the level of depressive symptoms of the general population.

Design. Participants ($N = 187$) of 20 psychoeducational groups in routine practice in the Netherlands were examined before and after the intervention using the Centre for Epidemiological Studies – Depression scale (CES-D).

Methods. The standardized improvement from pre- to post-test in subjects was compared to the improvement found in subjects participating in a randomized trial of the same intervention. Furthermore, we compared the post-test scores to the scores of the general population.

Results. The improvement of depressive symptoms in routine practice was of the same magnitude as the improvement in the randomized trial. However, a considerable proportion of the participants (54.5%) still scored above the cut-off score of the CES-D at post-test, and the mean CES-D score of the participants ($M = 17.0$; $SD = 9.8$) differed significantly ($p < .01$) from the mean score in the general population ($M = 9.7$; $SD = 8.6$).

Conclusion. Psychoeducational intervention can be an important help for people with depressive symptoms. The improvement in terms of depressive symptoms in routine practice does not differ from the improvement found in a randomized trial.

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However, participants remained considerably more depressed than the general population and this intervention is, for many, not sufficient as a form of treatment.

Dozens of well-designed randomized trials have shown the efficacy of cognitive behaviour therapy for major depression (Churchill *et al.*, 2001; Scott, 2001) and minor depression (Barrett *et al.*, 2001). The external validity and generalizability of these findings in terms of routine clinical practice, however, can be questioned for several reasons (Hasler, Schnyder, Klaghofer, & Angst, 2002; Shadish, Matt, & Navarro, 2000). First, subjects who are willing to participate in randomized trials are not necessarily representative of subjects seeking help from mental health professionals. Furthermore, the strictly protocolled interventions from efficacy studies may not be followed exactly by the professionals working in practice, or they may not have sufficient training to deliver them as planned (Schoenwald & Hoagwood, 2001). And the organizational structures delivering the intervention in research settings are very different from daily mental health practice. Because of these differences between efficacy studies and daily practice, it is very important to examine the results of cognitive behaviour therapy in daily practice (Schoenwald & Hoagwood, 2001).

Research in this area has not given any definite answers to the question of whether cognitive behaviour therapy is as effective in clinically representative conditions as is found in efficacy trials. Some evidence suggests therapy might be ineffective under those conditions (see Weisz, Donenberg, Han, & Weiss, 1995; Weisz, Weiss, & Donenberg, 1992). On the other hand, a recent meta-analysis found that the results of psychotherapy studies in clinically representative conditions are comparable to the results of efficacy studies (Shadish *et al.*, 2000), but only a few of the studies included in that meta-analysis examined cognitive behaviour therapy for depression. And we found no studies examining the effectiveness of cognitive behaviour therapy for minor depression in daily practice.

In this study, we examine a population of participants of the 'coping with depression' course (CWD) in daily practice. This course is a psychoeducational cognitive behavioural treatment module for depression, which was first developed by Lewinsohn and colleagues (Lewinsohn, Antonucci, Breckenridge, & Teri, 1984) and is based on the social learning theory. The CWD is highly structured, and is designed to teach skills which can be used by the depressed individual in changing the behavioural and cognitive patterns related to depression. The skill modules focus on relaxation, social skills, cognitive skills and how to increase the number of pleasant events. The CWD consists of 12 sessions and two booster sessions. Although the CWD was first developed for adults, it was later adapted for use with other populations, such as the elderly (Thompson, Gallagher, Nies, & Epstein, 1983), adolescents (Lewinsohn, Clarke, Rohde, Hops, & Seeley, 1996), and minority groups (Organista, Muñoz, & Gonzalez, 1994). In a meta-analysis (Cuijpers, 1998), 20 studies (including seven randomized control trials) of the CWD for differing populations were found through a systematic literature search. The mean effect size of the randomized trials was found to be 0.62

(95% confidence interval: 0.44–0.85), which can be considered to be large (Lipsey, 1990). The effects of the CWD are comparable to the effects of traditional psychotherapy and pharmacological treatments of depression (Cuijpers, 1998).

In the Netherlands, the CWD for adults is widely disseminated as an early intervention for subjects with minor depression. Minor depression is defined here as clinically relevant depressive symptoms without meeting criteria for major depressive disorder or dysthymia. The courses are organized by prevention departments from regional mental health centres and are now available for about 80% of all adults in the Netherlands. Participants are recruited through advertisements in regional media and referrals from health professionals. Exclusion criteria are kept to a minimum, according to the psychoeducational nature of the intervention and subjects are not registered as patients of the mental health care institute. However, subjects meeting criteria for major depression are referred to their general practitioner, although no formal diagnostic interview is conducted and it cannot be ruled out that some subjects do meet criteria for major depression.

In this paper, we examine two research questions: (1) Is the improvement from pre-test to post-test in subjects participating in CWD groups in routine practice comparable to the improvement realized in a randomized efficacy trial of the CWD?; and (2) do subjects who participate in the CWD improve enough in terms of depressive symptoms to be within the normal range of symptoms in the general population after therapy?

Method

Subjects and procedure

The participants of 20 CWD courses, organized by 10 organizations of out-patient mental health services in the Netherlands during the years 1999–2001 were asked to participate in the study. Each of the participating organizations organized one to three of the included courses. All potential participants of the courses have, as has been described in the national protocol of the CWD for adults of working age (Cuijpers, Bonarius, & Van den Heuvel, 1996; Voordouw, Kramer, & Cuijpers, 2002), one introductory session with the group leaders in order to check the (minimal) exclusion criteria and to provide information about the course. During this introductory session, the participants filled in a questionnaire with demographic data and a depression questionnaire (the CES-D). During the tenth and last session of the course (11–13 weeks later), the participants filled in the CES-D once more. Subjects who were thought to meet criteria for major depression were referred to their general practitioner and did not participate in the intervention.

Each course comprised 7–13 participants ($M = 9.4$). Participation in the study was not obligatory for participants, and it is possible that in some groups some more persons participated who refused participation in the study. However, the collection of most of the data is also a regular part of the CWD course, as they are used by the participants to monitor their own improvement. We do not have complete data about how many

subjects refused participation in the study, although the course leaders reported that participants only occasionally refused participation.

Selected characteristics of the 187 subjects participating in the study are presented in Table 1. Most of the participants were women (71%), married (47%), and employed (47%). The mean age was 45 years ($SD = 11.0$). The majority (71%) indicated that the depressive symptoms were present for longer than 1 year, and 89% indicated that they had had significant depressive symptoms before. A considerable proportion of the participants (63%) indicated that they had also received another form of treatment during participation in the intervention (from general practitioner, mental health professional or social worker), and 62% used antidepressant medication.

Table 1. Selected characteristics of subjects participating in the ‘coping with depression’ course in routine practice

Characteristic	Daily practice
N	187
Mean age (SD)	45.0 (11.0)
Women (proportion)	0.71 (132)
Married (proportion)	0.47 (88)
Divorced (proportion)	0.08 (15)
Employed (proportion)	0.47 (88)
Unemployed (proportion)	0.05 (10)

Measures

Depressive symptomatology was assessed on the basis of the Centre for Epidemiological Studies – Depression scale (CES-D; Radloff, 1977), Dutch version (Bouma, Ranchor, Sanderman, & Van Sonderen, 1995). The CES-D has been proven to be a reliable and valid instrument for measuring depressive symptomatology in adults in the Netherlands (Bouma *et al.*, 1995) and other countries (Radloff, 1977; Ensel, 1986). In our sample we found a reliability coefficient α of .78.

Demographic variables measured include: age, gender, marital status, occupational status, use of mental health services, use of antidepressant medication during participation in the intervention, and earlier depressive symptoms.

Intervention

The Dutch version of the ‘coping with depression’ course for adults (Cuijpers *et al.*, 1996; Voordouw *et al.*, 2002) is a translation and adaptation of the original version (Lewinsohn *et al.*, 1984). All original materials were translated, examples were taken from actual Dutch cases, and the instruments used in the original version (such as the Pleasant Events Schedule, social skills measures) were replaced by comparable Dutch instruments. In the

Netherlands, a specific CWD course has been developed for older people (aged over 55 years), which is available for about 80% of the Dutch older population. Therefore, most of the participants of the courses in this study were younger than 55.

Analyses

In order to answer the first research question, we compared the improvement of subjects participating in the CWD in routine practice (RP-CWD) to the improvement of subjects participating in a randomized controlled trial of the CWD (RCT-CWD) in the Netherlands (Allart-Van Dam, 2003). This trial recruited subjects from the general population and used the same CWD manual as was used with our sample. Subjects with major depression (according to the CIDI) and subjects receiving some form of mental health treatment were excluded. In this trial, 110 participants were randomly assigned to the experimental group (receiving the CWD; $N = 68$) or a no treatment control condition ($N = 42$). As a measure for depressive symptoms, the BDI was used at pre-test and at post-test. The effects of the CWD on depressive symptoms as measured with the BDI were found to be significant and large compared to the no-treatment control group (standardized effect size $d = 0.80$).

In order to make the comparison between the RP-CWD data and the RCT-CWD data as far as possible, two factors should be taken into account. First, both RP-CWD and RCT-CWD data had to be analysed on an intention-to-treat-basis. Second, both RP-CWD and RCT-CWD samples had to resemble each other as much as possible on important prognostic variables. Therefore, the analyses were carried out in the following way.

In the RP-CWD condition, 187 participants started at t_0 , but due to loss of follow-up, 128 (68%) completed the study at t_1 . The missing CES-D data were imputed with the imputation procedure as implemented in Stata, using the smallest set of significant predictors for the missing outcomes: the mental health subscale of the MOS-SF-36, marital and employment status, current use of health services, and prescription of antidepressants. The MOS-SF-36 is a generic self-report measure of quality of life, which was also filled in by the respondents of the study (but not analysed further in this study; RAND, 1992; Dutch version: Van der Zee & Sanderman, 1993). The Dutch version has good psychometric properties (Van der Zee & Sanderman, 1993). The mental health subscale can be considered to be a general measure of mental health.

The RP-CWD participants differed from the RCT-CWD participants in terms of three variables that were also significant ($p < .05$) predictors of CES-D depression at t_1 : marital status (Fischer exact test $p < .001$); employment status ($p = .005$) and gender ($p = .116$). Although the difference between RP and RCT in the latter variable was not significant at $p < .05$, we nevertheless re-weighted the RP data such that its distribution over all three predictors was exactly the same as was observed in the RCT.

To obtain correct 95% confidence intervals (95% CI) under weighting, we used robust variance estimates that were calculated with the first-order Taylor-series linearization method as implemented in Stata.

Because different depression measures were used in the RP-CWD study and the RCT-CWD (the CES-D and the BDI), we could not directly compare the improvement from pre-test to post-test in both populations. Therefore, we used meta-analytical techniques to calculate the standardized improvement from pre-test and post-test for both populations. The standardized improvement (d) was calculated with the following formula: $d = (M_{\text{pre}} - M_{\text{post}}) / SD_{\text{pre}}$. In this formula, d is calculated by subtracting the average score at pre-test (M_{pre}) from the average score in the post-test (M_{post}) and dividing the result by the standard deviations at pre-test (SD_{pre} ; Rosenthal & DiMatteo, 2001). In this way, the improvement from pre-test to post-test is converted into a statistic that relies on distributions of scores on the measures used, and hence allows direct comparison between them (Rosenthal & DiMatteo, 2001; Cooper & Hedges, 1994).

The second research question was examined with the methods of normative comparisons as described by Kendall and colleagues (Kendall, Marrs-Garcia, Nath, & Sheldrick, 1999). We compared the mean CES-D scores of the subjects from our routine practice sample to the CES-D scores of a random sample of the general population in the Netherlands ($N = 2,768$; Bouma *et al.*, 1995), using a t test. We also compared the percentage of subjects in both populations (routine practice and the general population) who scored higher on the cut-off score of 16, as an indication of severe depressive symptoms or the possibility of a major depressive disorder. We calculated 95% confidence intervals around these percentages and examined whether these intervals overlapped, indicating significant differences.

Results

The mean standardized pre-post effect size (d) in the RCT-CWD was found to be 0.87 (95% CI = 0.52–1.22). The best corresponding RP-CWD estimate, based on imputed and re-weighted data (weighting with post-stratification weights), was very similar: $d = 0.84$ (95% CI = 0.69–0.99). The latter estimate falls well within the 95% confidence interval of the former and therefore we must conclude that there is no statistical difference between the results as obtained from the RCT-CWD as compared with those from RP-CWD.

In order to examine whether the subjects participating in the RP-CWD improved enough in terms of depressive symptoms to be comparable at post-test to the level of depressive symptoms in the general population, we conducted several analyses. We compared the subjects at post-test to a normative comparison group, consisting of a random sample of the Dutch population ($N = 2,768$; Bouma *et al.*, 1995). First, we examined whether the mean CES-D score of the RP population at post-test was different from the mean CES-D score of the general population. The mean of the RP-CWD population was 17.0 ($SD = 9.9$), while the mean CES-D score of the general population was 9.7 ($SD = 8.6$). A t test indicated that the mean scores of the two populations were significantly different from each other ($t = 9.89$; $df = 205$; $p < .01$), indicating that the

RP-CWD population at post-test clearly was still more depressed than the general population.

Next, we examined the percentage of subjects from the RP-CWD population who scored above the much-used cut-off score of 16 on the CES-D (Table 2). Before the intervention, 85.3% of the RP-CWD population (95% CI: 0.80–0.90) scored above the cut-off score of 16, compared to 19.5% of the general population (95% CI: 0.18–0.21). At post-test, 54.5% of the RP-CWD population still scored above the cut-off point (95% CI: 0.47–0.62). Fifteen percent of the subjects who scored below the cut-off score at pre-test (4 of 26), scored above the cut-off score at post-test. Of the subjects who scored above the cut-off score at pre-test, 39.2% (63 of 161) scored below the cut-off score at post-test. Although the proportion of subjects scoring above the cut-off point decreased considerably from pre-test to post-test among RP-CWD-participants, the proportion of subjects scoring high at post-test was still considerably larger than the proportion of the general population. Also, the mean of the RP-CWD population was higher (17.02) than the cut-off score of 16 (Fig. 1).

Table 2. Participants of the ‘coping with depression’ course in routine practice scoring above or below the cut-off point on the CES-D (16) at pre-test and post-test

Pre-test	Post-test		Total
	Below cut-off	Above cut-off	
Below cut-off	22	4	26
Above cut-off	63	98	161
Total	85	102	187

Because the earlier described randomized trial of the CWD did not use the CES-D as an outcome measure (the BDI was used), we cannot compare the number of cases among the participants in this trial to the number of cases among our population.

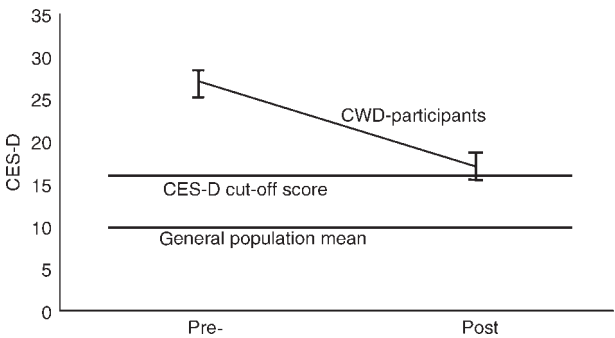


Figure 1. Means and 95% confidence intervals of depressive symptoms (as measured with the CES-D) in participants of the ‘coping with depression’ course before and after the intervention (N = 187).

Discussion

This study has several limitations. First, not all subjects participating in the interventions conducted in practice also participated in the study, and we do not know exactly how many people refused, although we expect this number to be very small. But, however small, this may have distorted the results of our study. Second, it is not clear whether the group leaders conducted the interventions as described in the protocols. Third, the selection of participants for the intervention was not conducted with standardized measures. Fourth, a considerable number of subjects did not fill in the post-test questionnaire, and although this is common in many comparable studies it may have distorted the outcomes we found, and we had to impute the missing data. Fifth, in the comparison between the randomized trial and the intervention conducted in routine practice, different measurement instruments were used. And, sixth, the comparison we made with the randomized trial may be distorted because we did not know all possibly important variables in both studies, such as the number of participants with major depression in our sample, and the exact patterns of other treatments. Because of these limitations we have to be careful in the interpretation of the results of this study.

On the other hand, this study was conducted in routine practice with clinically representative patients. This study gives clear indications that subjects participating in a psychoeducational intervention for depression improve considerably during this intervention. We found no indication that participants improve more or less than participants in a randomized controlled trial of the intervention. And although it has been suggested that the improvement found in randomized trials is superior to improvement found in interventions in daily practice, we found no support for this hypothesis. Possibly, the comparable improvement is related to the fact that the psychoeducational intervention that was used is well protocolled and makes use of standardized patient materials. Furthermore, the protocols and materials were translated and adapted from the original materials from the USA, but have been regularly improved and updated during several years in close collaboration with the group leaders in practice. This has probably resulted in reasonably close adherence to the available protocols.

We also found that subjects participating in the 'coping with depression' course in daily practice are not fully recovered and free of symptoms of depression. At post-test more than half of the participants still scored above the cut-off score on the depression measure we used, indicating a possible depressive disorder. Although this intervention is sufficient for some of the participants in order to relieve depressive symptoms, it cannot be assumed for any participant that no further treatment is necessary after the intervention. This intervention could be considered to be a general introduction to cognitive behaviour therapy and mood management techniques. However, for many participants further treatment, for example by individualized cognitive behaviour therapy or anti-depressive medication, should be advised.

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